

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



534011

(43) International Publication Date
21 May 2004 (21.05.2004)

PCT

(10) International Publication Number
WO 2004/042992 A1

(51) International Patent Classification⁷: H04L 1/18, H04B 7/005

(21) International Application Number: PCT/IB2002/004618

(22) International Filing Date:
5 November 2002 (05.11.2002)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant (for all designated States except US): NOKIA CORPORATION [FI/FI]; Keilalahdentie 4, FIN-02150 Espoo (FI).

(72) Inventors; and

(75) Inventors/Applicants (for US only): ZHAO, Zhuyan [CN/CN]; Jiu Jie Fang, 908-2-3, Hai Dian district, Beijing 100038 (CN). ZHENG, Hongmming [CN/CN]; Jiu Jie Fang, 908-2-3, Hai Dian district, Beijing 100038 (CN). GUAN, Hao [CN/CN]; Cheng Guang Jia Yuan, east 218#1704, Chao Yang district, Beijing 100025 (CN).

(74) Agent: KURIG, Thomas; Becker, Kurig, Straus, Bavariastrasse 7, 80336 München (DE).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

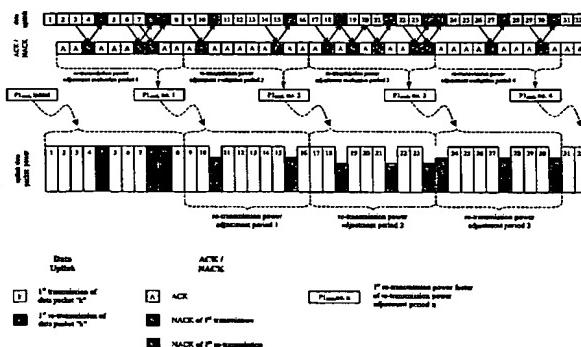
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD, DEVICE AND SYSTEM FOR DETERMINING A TRANSMISSION POWER FOR ARQ RELATED RE-TRANSMISSIONS



WO 2004/042992 A1

(57) Abstract: The present invention provides a method, a mobile terminal device and a system for determining a transmission power factor. Further, software tools and computer programs being based on embodiments of the method of the invention are also provided. During an uplink of data between a mobile terminal device and a base station via a code division multiple access (CDMA) system supported by automatic repeat request (ARQ) first transmission containing original data and re-transmissions of different order containing supplementary information are communicated. The i-th re-transmissions are based on the automatic repeat request (ARQ). The transmission power factor to be determined is operable with an i-th re-transmission. A first and a second error quantity are obtained from an evaluation of status information items received in accordance with the automatic repeat request (ARQ). The first error quantity is equal to an number of ARQ relating i-th re-transmissions whereas the second quantity is equal to a number of i-th re-transmissions being responded by status information items each containing an ARQ relating non-acknowledgement item. The first error quantity and the second error quantity allow for deriving an i-th error ratio and depending on that a transmission power correction factor is calculated. The transmission power factor being operable with i-th retransmissions is determined finally from a current valid transmission power factor and the calculated transmission power correction factor.